

# Observations on and Distribution of Some Western and Southwestern Mollusks

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DURING THE PAST TEN YEARS the senior author has accumulated considerable distributional data on several species of western mollusks, and those data are reported herein. The remaining observations were secured during August of 1959 in the mountain states of Arizona and New Mexico. Specimens collected in Sonora, Mexico have been discussed elsewhere (BRANSON, McCOY & SISK, 1964). With the exception of a few specimens deposited in the U. S. National Museum, all specimens were retained by the senior author. Dr. J. P. E. Morrison of the U. S. National Museum is thanked for verifying some of our identifications.

## Prosobranchia

### AMNICOLIDAE

#### *Amnicola idahoensis* PILSBRY, 1933

On 23 VIII 1955, 223 specimens of this pink-shelled species were collected from an irrigation ditch near U. S. Highway 30 in the Snake River Valley, Oregon, a locality immediately adjacent to Weiser, Idaho. The shells ranged from 4.3 mm to 7.8 mm in height, and 2.6 mm to 3.5 mm in greatest diameter. This collection apparently represents a new distribution record, the next nearest site is that of

PILSBRY (1933) at Home Dale, Idaho, 62 miles to the north.

#### *Fluminicola columbiana* HEMPHILL, 1899

Dr. G. A. Moore, Oklahoma State University, kindly sent us 187 alcoholic specimens collected from the north fork of Clearwater River on 20 VIII 1958, three miles above Oksakka, Idaho. This species has been collected on several occasions near Weiser.

#### *Amnicola* (= *Paludestrina*) *longinqua* GOULD, 1855

Eight dead shells were removed from the banks of Bear Lake, Idaho on 18 VIII 1961.

## Pulmonata

### HELICIDAE

#### *Monadenia fidelis* (GRAY, 1834)

Two living specimens were secured on 23 VIII 1962, Hoh River Rain Forest, Olympic National Park, two miles east of the Hoh River camp ground, Washington.

#### *Helix aspersa* MÜLLER, 1774

On 13 V 1959 two large specimens were taken from a truck farm in Los Angeles County, and ten from a similar situation in Fresno County, California. These are all the data supplied us by a student collector. From the literature at hand, the Fresno record seems to be a new one. However, these large European exotics are readily trans-

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ported in vegetation, so the species is doubtless widespread in California. In some areas they pose an agricultural problem.

#### HELMINTHOGLYPTIDAE

##### *Helminthoglypta callistoderma* (PILSBRY & FERRISS, 1918)

On 4 VII 1959 Mr. Miles Eiseman collected a living animal near Hot Springs Ranger Station, near the 3000 foot elevation mark, Tulare County, California. Although the species is known from that county, this specimen is of some interest. Its mensurable characters are: diameter, 32.0 mm; height, 26.2 mm; there are exactly 6 whorls. The entire dorsum and sides of the soft anatomy are covered by black reticulations, the ground color being mollis-gray. PILSBRY's (1939) largest specimen measured 15.6 mm in height and 23.0 mm in diameter, possessing  $5\frac{1}{2}$  whorls. His color description, from a long-preserved specimen, indicated the body to be neutral gray and the reticulations to be restricted to the lung region.

##### *Sonorella granulatissima* PILSBRY, 1902

McCoy collected 22 specimens on 10 VIII 1958 from Ramsey Canyon, Huachuca Mountains, Cochise County, Arizona. These shells were taken from lichen-covered talus, at that time being very moist from recent rains. All specimens were more or less spirally striate on the last whorl. The mensurable details were: 8.5 to 17.6 mm in diameter; height, 5.2 to 9.6 mm; 3 to  $4\frac{1}{2}$  whorls. PILSBRY's (1905) descriptions taken from specimens secured in the same general locality are essentially identical to those observed by us. However, nine specimens collected on 22 VIII 1959 from nearby Carr Canyon did not demonstrate the variation in sculpture reported by PILSBRY in specimens taken from this canyon over 60 years ago. The shells are indistinguishable from those of Ramsey Canyon.

##### *Sonorella virilis* PILSBRY, 1905

A total of 43 beautiful specimens were secured from Cave Creek Canyon, Chiricahua Mountains, Arizona, on 12 VIII 1959. Twelve of these were found near 7000 feet M. S. L., and the others at approximately 6500 feet. They were all in the same sort of habitat described above for *Sonorella granulatissima*. At the time, a driving rain was falling, and snails were crawling everywhere, most of them in tandem, indicating that the breeding cycle is probably geared to the occurrence of rainfall rather than to a particular season of the year.

The striation on the last whorl varied from heavy to practically lacking. According to PILSBRY's (1905) description of the holotype, the back is "pebbly-granose," as it is in our specimens, and the color, including the eye stalks, was blackish-gray, the tail and sides being pale, dirty brownish-white. In the specimens examined by us, the tentacles, eyestalks and sides of the foot were brilliant orange in color, the back being more faintly

colored, slaty gray showing through. The probable reason for these differences is that the specimens observed by PILSBRY were collected during the dry season, and they were preserved in alcohol. The orange coloration is present during the mating season, and it very quickly fades in alcohol.

The shell varied from very dark to drab, faded. The penis, also bright orange, is of enormous length, being more than twice the length of the shell. The mensurable details of the shell follow.

Diameter	Height	Whorls
17.5 mm	10.0 mm	$4\frac{1}{4}$
20.5 mm	12.0 mm	$4\frac{3}{4}$
20.5 mm	11.5 mm	$4\frac{3}{4}$
7.0 mm	4.5 mm	$2\frac{3}{4}$

There is very broad overlap in the above measurements with those of *Sonorella virilis circumstriata* PILSBRY. Hence, the validity of that race is doubted.

##### *Oreohelix strigosa depressa* (COCKERELL, 1890)

During July of 1957, McCoy collected 121 typical specimens at Coulter Mesa, elevation 10000 feet mean sea level, 21 miles north of Rifle, Garfield County, Colorado, and 14 specimens from Freemont County. Both of the above localities are considerably farther south than the records listed by PILSBRY (1939). Four specimens were donated by Mr. Pat Miller, collected on 10 VI 1961 at the Dinosaur National Monument, Hardy's Hole, elevation 5700 feet, a sandy hillside above the Yampa River, in Colorado.

##### *Oreohelix subrudis* ("PFEIFFER," REEVE, 1854)

Nearly 400 living specimens were taken near Trappers Lake, Colorado in August 1954, at an altitude of approximately 12000 feet. As many as 50 specimens were removed from beneath a piece of debris measuring less than one square foot. This parallels a similar observation by HENDERSON (1936) in Yellowstone National Park. Another collection by McCoy netted over 200 specimens in Freemont County, Colorado on 18 VII 1957. Sixteen specimens were found on 20 II 1960, beneath *Cercocarpus* thickets and yucca,  $8\frac{1}{2}$  miles north of Boulder, Boulder County, Colorado, and one specimen was found beneath a stone on 11 IX 1960 in the Plateau Creek area, 5 miles east of the creek's mouth, Mesa County, Colorado. An older collection, 39 specimens associated with two living *Anguispira kochi occidentalis* on the littered forest floor at Pierce, Clearwater County, Idaho, is an additional locality for the species in that state.

##### *Oreohelix clappi* FERRISS, 1904

Eight pairs of *Oreohelix clappi* in copula were found at the Cave Creek station discussed under *Sonorella virilis*. The shell measurements for these specimens were: height,

8.0 to 9.2 mm; diameter, 14.2 to 16.0 mm; whorls,  $4\frac{2}{3}$  to 5. There is close agreement between our specimens and those of PILSBRY (1905), but in our opinion there is little reason to recognize the nominal subspecies *Oreohelix clappi emigrans* and *O. clappi cataracta* (PILSBRY & FERRISS, 1910).

#### AMMONITELLIDAE

##### *Polygyrella polygyrella* (BLAND & COOPER, 1861)

We follow WURTZ (1955) in separating the ammonitellids from the Camaenidae. Three living animals were collected from some moist pine duff in Clearwater County, Idaho, T39N, R5E, S23, on 4 VI 1956. This appears to be an additional locality for the species.

#### POLYGYRIDAE

##### *Triodopsis mullani olneyae* (PILSBRY, 1891)

Found with the *Polygyrella* were four living specimens of this large species, likewise a new distribution record.

##### *Allogona ptychophora lombardi* A. G. SMITH, 1943

The senior author secured one large specimen at the Clearwater County station in Idaho, and Mr. H. G. Stovall collected two in August of 1958, 15 miles north of Avery, Shoshone County, Idaho. All three specimens were living in moist forest litter. As both sites are new records, it would appear that this form is considerably more widely distributed than heretofore supposed. The shell characters agree closely with those given by SMITH (1943).

##### *Ashmunella rhyssa edentata* COCKERELL, 1900

Two dead shells and 12 living specimens were found at 8000 feet, one mile east of Cloudercroft, Sacramento Mountains, Otero County, New Mexico on 14 VIII 1958. These are virtual topotypes. After comparing these specimens with some of *Ashmunella rhyssa rhyssa* and *A. rhyssa miorhyssa*, it does not seem plausible to retain any of the subspecific epithets.

##### *Ashmunella townsendi* BARTSCH, 1904

Thirty-seven large specimens were collected during a rain storm near the entrance into the Mescalero Apache Reservation, near Ruidoso, White Mountains, at approximately 7000 feet elevation, on 10 VIII 1959. They were very abundant beneath decaying logs, some pairs in copula. Virtual topotypes.

##### *Ashmunella mogollonensis* (PILSBRY, 1905)

Six specimens were found associated with the *Sonorella virilis* discussed above. The following mensurable characters were secured from them: height, 9.3 to 10.5 mm; diameter, 19.5 to 21.5 mm; whorls,  $5\frac{1}{4}$  to  $5\frac{3}{4}$ .

##### *Ashmunella ferrisi* PILSBRY, 1905

Also associated with the *Sonorella virilis* were 49 living specimens of this peculiar species, many of which were in mutual tandem. Mensurable details follow.

Diameter	Height	Whorls
4.4 mm	2.0 mm	3
11.5 mm	5.0 mm	$6\frac{1}{2}$
12.0 mm	5.5 mm	$6\frac{1}{2}$

Although PILSBRY (1905, 1940) and PILSBRY & FERRISS (1910) reported this species as occurring only at the foot of Reeds Mountain in the Cave Creek Valley, our collecting site was some five to six miles up the valley. This form is doubtless more widely distributed in the inter-connected valley systems of this region.

##### *Ashmunella levetti* (BLAND, 1882)

On 10 August, 1958, McCoy found only six specimens near the type locality, Ramsey Canyon, 7000 feet, in the Huachuca Mountains, Cochise County, Arizona. At that time the rocks were dry and the temperature  $96^{\circ}$  F. On 22 August, 1959, the temperature was only slightly in excess of  $70^{\circ}$  and rains were occurring regularly. The species was abundant on talus slides, and the authors secured 65 specimens in a few minutes, near Carr Canyon at approximately 8000 feet altitude, M. S. L. Measurements ranged from 6.0 mm in diameter, 3.0 mm in height and slightly more than 3 whorls, to 13.0 mm in diameter, 5.8 mm in height,  $6\frac{3}{4}$  whorls.

According to distribution our specimens should be *Ashmunella levetti angigyra* PILSBRY. However, there seems to be little reason to recognize these so-called races. In this area, such "subspecies" are imaginary.

There is practically nothing known concerning the breeding habits, life history and cytology of the mountain gastropods of western North America. Moreover, there is a great deal of information yet to be gleaned concerning ecological affinities, basic morphology and taxonomy of the species occupying the lesser mountain ranges in Arizona and New Mexico.

#### SAGDIDAE

##### *Thysanophora horni* (GABB, 1866)

Eleven dead shells were separated from drift material deposited by the San Pedro River near Hereford, Cochise County, Arizona, 22 VIII 1959. All were rather typical of that species.

#### HAPLOTREMATIDAE

##### *Haplotrema vancouverense* (LEA, 1839)

One specimen, 26.0 mm in greatest diameter, was donated by Dr. B. P. Glass, Oklahoma State University, collected on 20 VI 1960 in the Olympic National Park, Surprise Valley, Jefferson County, Washington. Neither HENDERSON (1929) nor BAKER (1930) reported the species from this locality.



## ZONITIDAE

*Euconulus fulvus alaskensis* (PILSBRY, 1899)

A single specimen was collected from deep leaf mold at the White Mountains site. In addition, McCoy took six living specimens at a locality one mile north of the Y.M. C. A. camp, near Glacier Creek, Estus Park, Larime County, Colorado. This species' range is known to extend southward to at least the Mexican border at high altitudes in the Chiricahua and Huachuca mountains (PILSBRY & FERRIS, 1910, 1915). Although *Euconulus fulvus* has been found in the Whites (PILSBRY & FERRIS, 1918), the so-called race *alaskana* has not. It is doubtful whether this form merits recognition.

*Retinella indentata* (SAY, 1823)

Four living specimens were found with the *Sonorella virilis*, and one dead shell was removed from the San Pedro River drift. This species was reported from the Cave Creek Canyon by PILSBRY & FERRIS (1906).

*Retinella electrina* (GOULD, 1841)

Three specimens from the Estus Park station.

*Hawaiiia minuscula* (BINNEY, 1840)

Over 100 shells were taken from some drift material on the banks of the Pecos River at the point where the stream crosses U. S. Highway 66, near Santa Rosa, New Mexico, and nearly 1000 from a similar situation at the San Pedro in Arizona. This species is quite generally distributed throughout the flatlands.

*Zonitoides arboreus* (SAY, 1816)

One specimen removed from drift on the banks of the Zuni River, near St. Johns, Apache County, Arizona, 25 VIII 1959; two living specimens at the Mescalero Apache Reservation; 84 shells at a locality eight miles west of Boulder, Colorado; and 73 at the Estus Park station.

*Vitrina alaskana* DALL, 1905

Two living specimens collected from beneath box elder duff at approximately 6000 feet, four miles west of Angus, Philadelphia Canyon, Lincoln County, New Mexico, 11 VIII 1959. The shells were very membranous, scarcely impregnated with calcium. An additional 22 shells were located at the Estus Park site.

## LIMACIDAE

*Deroceras laeve* (MÜLLER, 1774)

Associated with the *Vitrina alaskana* was a single specimen of this small, nearly black and nearly ubiquitously distributed slug. McCoy collected 12 specimens at the Estus Park site, and one from a flower garden in Boulder, Colorado, 2 IX 1960.

*Limax flavus* LINNAEUS, 1758

Seven large specimens removed from some water meters in Fresno, Fresno County, California, 13 V 1959.

The records for the last two species are apparently new.

*Limax valentianus* FÉRUSAC, 1823

Three of these small, longitudinally banded, tan slugs were taken with the *Limax flavus*. A new record for this European exotic.

## ENDODONTIDAE

*Anguispira kochi occidentalis* (VON MARTENS, 1882)

One living specimen was found with the *Oreohelix subrudis* at Piercc, Idaho, and one dead shell with the *Allogona* in Shoshone County, Idaho.

*Discus shimeki* (PILSBRY, 1890)

Twenty-seven living specimens were collected on 16 VIII 1960 from beneath some boulders at 10000 feet, near Eldora, Boulder County, Colorado, and 13 at Estus Park.

*Discus cronkhitei* (NEWCOMB, 1865)

McCoy secured 14 specimens at the Estus locale, this representing a new record.

*Helicodiscus eigenmani arizonensis*

PILSBRY & FERRIS, 1906

One specimen from the banks of the Salt River, U. S. Highway 60, Gila County, Arizona on 24 VIII 1959, and six from the banks of the Pecos River, Santa Rosa, New Mexico. Both are new records for this form. As pointed out elsewhere, there are reasons for doubting the validity of *Helicodiscus eigenmani*, primarily because the form tends to grade to *H. parallelus* in the east. Specimens from western Oklahoma, especially in Cimarron and Texas counties, and from western Kansas are equally as large and as well-marked as specimens from the Rockies and their outliers. Statistical evaluation of a large series would probably demonstrate an east-west cline as regards size and shell sculpturing.

*Helicodiscus singleyanus* (PILSBRY, 1890)

Six dead shells removed on 23 VIII 1959 from the banks of the Gila River, one mile north of Florence, Pinal County, Arizona. A new distribution record in Arizona.

## ARIONIDAE

*Prophysaon humile* COCKERELL, 1890

One small specimen of this peculiar slug was collected with the *Polygyrella* in Idaho. From the genitalia, it would appear that some taxonomic reconsiderations are in order. They are suspiciously like those in the Polygyridae.

*Ariolimax columbianus* (GOULD, 1851)

Three specimens, 32.0, 90.5 and 92.0 mm in total length (alcoholic), were secured by Dr. B. P. Glass at his Washington collecting station. HENDERSON (1929) did not mention this locality. Two typical specimens were collected by the senior author from beneath a fallen western red cedar on 23 VIII 1962, two miles east of the Hoh River camp grounds, Olympic National Forest, Washington.

## SUCCINEIDAE

*Catinella vermata* (SAY, 1829)

One dead shell from the Zuni River drift and another one at the San Pedro station. McCoy secured three living specimens on the banks of Warm Springs Creek, near its confluence with the Yampa River, Moffat County, 10 VI 1961, one from a dry irrigation ditch at Canyon City, Fremont County, 2 IX 1960, and two at the Estus Park site, all in Colorado.

## PUPILLIDAE

*Gastrocopta proarmifera* LEONARD, 1946

A single specimen, doubtless washed downstream from some outcropping, of this Pleistocene fossil was found on the banks of the Green River, U. S. Highway 50, on 28 VI 1963, Utah. It measures 4.2 mm in height, 2.3 mm in diameter and has 6 whorls. The spur is well developed on the parietal tooth.

*Gastrocopta armifera* (SAY, 1821)

Seven shells, corresponding to Sterki's nominal subspecies *Gastrocopta armifera abbreviata* were found at the Santa Rosa station in New Mexico.

*Gastrocopta tappaniana* (C. B. ADAMS, 1842)

A single shell was taken at the San Pedro station.

*Gastrocopta quadridens* PILSBRY, 1916

Two specimens of this distinct species were collected from the Salt River locality, a considerable distance from the nearest northern record (Chiricahua Mountains).

*Gastrocopta perversa* (STERKI, 1898)

One specimen each from the Gila and Salt River sites. The latter is a new distributional record. All previous records are from southeastern Arizona.

*Gastrocopta ashmuni* (STERKI, 1898)

Three specimens from the drift at the Salt River station.

*Gastrocopta cochisensis* (PILSBRY & FERRISS, 1910)

A single shell of this relatively uncommon snail from the San Pedro drift represents a new distribution record for the species.

*Gastrocopta oligobasodon* (PILSBRY & FERRIS, 1910)

Two shells from the San Pedro drift. This species doubtless is more widely distributed than the paucity of records indicates. However, the species may be only a variant of *Gastrocopta cochisensis*.

*Gastrocopta dalliana* (STERKI, 1898)

Fifteen shells were found in river drift, seven at the Salt, four at the Pecos, and four at the San Pedro. The Gila County record is an additional site in Arizona, and the one at Santa Rosa is an addition to the known fauna of New Mexico. Intensive collecting in Arizona and New Mexico will probably disclose several species heretofore regarded as rare or narrowly restricted in range. Valley systems allow migratory pathways around the bases of otherwise dry mountain areas.

*Gastrocopta bilamellata* (STERKI & CLAPP, 1909)

A single shell from the Gila River station represents a new site for the species, indicating this species' range to be farther east and north than supposed by PILSBRY (1948).

*Gastrocopta procera* (GOULD, 1840)

The following are localities from which specimens were secured, the number collected from each locality is in parentheses before the station: (1) Salt River; (23) Pecos River; (58) San Pedro River.

Nine of the Pecos specimens, 20 of the San Pedro, and the single specimen from the Salt River station were of the *Gastrocopta procera mclungi* (HANNA & JOHNSTON) type, or approximately one-half of the composite lot. Furthermore, there is considerable variation in the other specimens. The authors agree with FRANZEN & LEONARD (1947) that this name should be suppressed as a synonym.

*Gastrocopta cristata* (PILSBRY & VANATTA, 1900)

The records for this species are: (1) Gila River; (8) Zuni River; (1) Salt River; (20) Pecos River; and (123) San Pedro River.

*Gastrocopta pellucida* (PILSBRY, 1890)

As in *Gastrocopta procera*, two shell-morphs were observed in this species; *G. pellucida hordeacella* (PILSBRY), one specimen from the Gila and nine from the Pecos River station; and *G. p. parvidens* (STERKI), seven from the Salt and three from the Pecos River station. Although these are new distribution records, the more important point to be made here is that both "races" were collected in the same localities, relatively widely separated from one another. From this observation, and from considerable other evidence, it seems apparent that these names should be suppressed.

*Chaenaxis tuba* (PILSBRY & FERRISS, 1906)

Four specimens of this curious species were secured at the Gila River station, representing a new distribution record.

*Pupoides albilabris* (C. B. ADAMS, 1841)

Four specimens from the Gila River station, two at the Pecos, and 36 from the San Pedro. The first two are additional distribution records.

*Pupoides hordaceus* (GABB, 1866)

Ten shells at the Zuni station; one at the Pecos. Both are new distribution records.

*Pupilla sonorana* (STERKI, 1899)

Eight living specimens at the Philadelphia Canyon locality in New Mexico, a new locality for the species.

*Pupilla blandi* MORSE, 1865

Four dead shells were removed from the Pecos River drift material. These may or may not be Pleistocene fossils, since the periostracum is still intact.

*Pupilla syngenes* (PILSBRY, 1890)

One specimen found at the Salt River locality, an additional site for the species in Arizona.



*Vertigo milium* (GOULD, 1840)

One specimen found in the Zuni River drift.

*Vertigo ovata* SAY, 1822

Six typical specimens found at the San Pedro station.

*Vertigo binneyana* STERKI, 1890

Three specimens were secured from the drift of the San Pedro River. A new addition to the known fauna of Arizona, and the farthest west it has been found to date.

## VALLONIIDAE

*Vallonia gracilicosta* REINHARDT, 1883

Four specimens from the Pecos locality represent an additional site in New Mexico.

*Vallonia perspectiva* STERKI, 1892

Four shells were found at the Salt River station, another site for the species in Arizona.

*Vallonia cyclophorella* STERKI, 1892

Four living specimens were removed from box elder duff in Philadelphia Canyon, and McCoy collected six shells at the Estus Park station.

## CIONELLIDAE

*Cionella lubrica* (MÜLLER, 1774)

One specimen each at the Salt River and Philadelphia Canyon stations are both new localities and the most eastern records in the respective states.

## LYMNAEIDAE

*Lymnaea bulimoides* LEA, 1841

Three specimens collected at the San Pedro station.

*Lymnaea humilis* SAY, 1822

One specimen taken at the San Pedro station, and two living specimens from a prairie marsh one mile south of Boulder, Colorado (22 XI 1960). PILSBRY & FERRISS (1915) recorded this species under the epithet *Lymnaea parva*, which is considered as a synonym (HUBENDICK, 1951).

*Lymnaea palustris* (MÜLLER, 1774)

One specimen collected from the prairie marsh south of Boulder, Colorado.

*Lymnaea utahensis* (CALL, 1884)

Six specimens were collected on 18 VIII 1961 at Bear Lake, Idaho. The authors agree with HUBENDICK (1951) that this form looks suspiciously like a variant of *Lymnaea bulimoides*.

## PHYSIDAE

*Physa virgata* GOULD, 1855

Approximately 50 living specimens were collected from the moderately flooded waters of the Rio Hondo at Sunset, Lincoln County, New Mexico (10 VIII 1959), one at Bear Lake, Idaho, and one immature shell at the San Pedro River. PILSBRY & FERRISS (1915) found the species at the last-named locality. This is a widespread

form in the mountains, its range extending all the way to the Gulf of California in Mexico.

*Physa anatina* LEA, 1864

McCoy collected 11 living specimens from the prairie marsh south of Boulder which seem to be this species, a widespread form in the Great Plains.

## PLANORBIDAE

*Gyraulus parvus* (SAY, 1817)*Gyraulus carus* PILSBRY & FERRISS, 1906*Taphius decipiens* (C. B. ADAMS, 1849)

The above species, seven of the first, five of the second and seven of the third, were collected at the San Pedro station. *Taphius decipiens* is a beautiful, but poorly understood species, the synonymy of which has recently been discussed by BRANSON, MCCOY & SISK (1964). The center of abundance seems to be in Mexico, especially in the Rio Sonora and associated drainages.

*Gyraulus circumstriatus* (TRYON, 1866)

One specimen from the Zuni River represents a new distribution record in Arizona.

*Gyraulus similaris* (F. C. BAKER, 1917)

Five dead shells were secured from the Salt River station in Arizona.

*Gyraulus vermicularis* (GOULD, 1847)

One living specimen was removed from the underside of a floating piece of bark at the Green River site. It measured 3.3 mm in diameter, 1.0 mm in height, and possessed slightly more than 3½ whorls. CHAMBERLIN & JONES (1929) listed several Utah localities, but none so far east. The type locality is in Oregon.

*Gyraulus umbilicatellus* (COCKERELL, 1885)

McCoy collected a single dead shell from a pool approximately eight miles west of Boulder, Colorado. It may have been washed from higher elevations.

*Helisoma trivolvis* SAY, 1817

Five specimens collected on 3 IV 1963 at 6000 feet elevation, near Canyon City, Colorado are impossible to distinguish from this species. Some representative measurements are:

Diameter	Height	Whorls
11.0 mm	7.5 mm	3 $\frac{7}{8}$
12.5 mm	6.6 mm	4+
16.6 mm	8.3 mm	4 $\frac{3}{4}$

*Helisoma tenue sinuosum* (BONNET, 1864)

Hundreds of individuals were observed in the spring-fed pools of the old "Texas-John" Slaughter Ranch, now called the "Williams" Ranch, south of Douglas, Arizona on 27 I 1962. Nine specimens were collected for the record.

*Carinifex newberryi* (LEA, 1858)

One hundred and thirty-six dead shells were scooped up with one motion of a quart jar at the Bear Lake station. Thousands of shells lay on the beaches.

## PELECYPODA

*Pisidium casertanum* (POLI, 1791)

McCoy collected 50 living specimens of this small sphaeriid from the prairie marsh south of Boulder.

*Sphaerium striatinum* LAMARCK, 1818

Ten dead shells were collected with the *Carinifex* listed above. They are all of the *pilsbryanum* STERKI type (HERRINGTON, 1962).

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